

Abstract

A debris evacuation apparatus and method evacuates debris in a pumping system that forms between the plunger exterior and barrel interior. The apparatus has at least one seal and one groove located south of the seal, with the seal blocking northward travel of debris and directing it to the groove. Ports within the groove permit debris to enter the debris evacuation apparatus. Interior to the debris evacuation apparatus, the entering debris will become mixed with pumped fluid, and will be drawn out of the pumping system with the pumped fluid. The pumped fluid passing through the debris evacuation apparatus will be caused to rotate by a screw-in insert located at a south portion of the debris evacuation apparatus, utilizing a plurality of angled veins surrounding a closed center section located at a north end of the screw-in insert.